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A model for predicting heavy metal concentrations in soils

Frolova L., Zakirov A., Koroleva T.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

In the absence of 'a priori' information about the probable distribution of heavy metals in soils, it is relevant to carry out multiple parameter analyses of soil concentrations and to take into account a variety of factors. A method was developed to group existing soil data from the Predvolgie region of the Tatarstan Republic to forecast concentrations of heavy metals in similar soil environments. The predicted concentration of heavy metals in soils is obtained by applying a model that combines soil data using iterative statistical procedures of functional clustering and fuzzy sets. Currently, researchers do not have enough data from experimental and field research to construct adequate maps of soil pollution and estimates of the ecological state of the environment. Our proposed method permits a preliminary solution of these problems. © 2005 Springer-Verlag Berlin Heidelberg.

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Keywords

functional clustering, fuzzy sets, heavy metals, prediction model, soils